



FASTT Team Members Thomas Luchay (left) and D. Keith Shroyer, shown with an aqueous parts washer at NAVSTA Mayport.

NELP

Navy Environmental Leadership Program

bulletin

Special Pollution Prevention Edition

The Navy Environmental Leadership Program (NELP) was established to find new and innovative ways to manage Navy environmental programs. It includes a West Coast base at Naval Air Station North Island (NASNI) and an East Coast base at Naval Station (NAVSTA) Mayport.

The NELP mission includes testing new technologies and management strategies and then sharing successes throughout the Navy and Marine Corps family. NELP's ultimate goal is to preserve the environment and reduce cost and labor. One important tool for reaching that goal is pollution prevention (P2).

P2 has been a key element of NELP since its inception in 1993. To help focus more attention on P2 opportunities, NASNI NELP created a P2 Process Action Team, and NAVSTA Mayport NELP created a P2 Quality Management Board. Together, they evaluated several P2 initiatives including rag recycling programs, can crushing equipment, and environmentally friendly alternatives to hazardous chemicals.

NELP's P2 effort is enhanced by a partnership with the Chief of Naval Operations' Pollution Prevention Equipment Program (PPEP), which field-tests new P2 technologies. Through this partnership, PPEP supplies prototype equipment for testing at the NELP bases. The lessons learned from those tests are then incorporated into other Navy activities.

Today, P2 remains a top priority for both NELP bases. This NELP Bulletin, Special Pollution Prevention Edition, highlights some of the P2 initiatives under evaluation.

NELP

Introducing the champion for our environment

NELP is the result of a recommendation of the Chief of Naval Operations' (CNO) Environmental Quality Management Board (QMB). In 1993, the CNO designated Naval Station (NAVSTA) Mayport and Naval Air Station North Island (NASNI) as the East and West Coast NELP activities, respectively.

NELP's mission is to serve as a test bed for new and innovative technologies and focused management that will address the full spectrum of environmental issues and to export their successes and lessons learned throughout the Navy and Marine Corps family.

↪ continued on page 4

FASTT and NELP

A partnership for a better environment

Through a new partnership, the Fleet Assistance, Support and Technology Transfer (FASTT) team and NELP have identified ways to save an estimated potential \$5.1 million at NAVSTA Mayport over the next ten years. After conducting a survey of the base, the FASTT team made recommendations for improved efficiency and pollution prevention at the Aviation Intermediate Maintenance Department, the Shore Intermediate Maintenance Activity, and many other areas.

Headed by Charles Tittle of Naval Sea Systems Command (NAVSEA) Headquarters, FASTT includes members from a variety of military disciplines and is considered a DoD authority on environmental and maintenance improvements.

↪ continued on page 2

NELP Initiatives

- ↪ Clay Absorbent Recycling (North Island)
- ↪ Helicopter Transmission Fluid Recycling System (Mayport)
- ↪ Aircraft Engine Wash Effluent Capture System (North Island)
- ↪ Rydlyme Liquid Solution to Dissolve Water Scale and Lime Deposits in Boiler Tubes (Mayport)
- ↪ Batch Paint Dispenser (North Island)
- ↪ Solvent Distiller (Mayport)

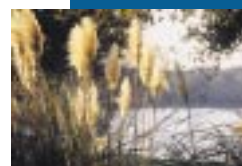
A glance at what's in this issue



page 1

NELP

Introducing the champion for our environment



page 2

Life cycle cost assessments to provide environmental model

The Navy continues to find ways of lowering costs while still meeting regulatory requirements.



page 3

NAS North Island hits the road in electric vehicles

Staff at Naval Air Station (NAS) North Island are slashing pollution levels by using electric pickup trucks for transportation on-base and between bases.



page 6

Solvent-Free Cleaning

Mayport and North Island move to automated, nonhazardous parts washing.

Life Cycle Cost Assessments to Provide Environmental Model

As the price of environmental compliance rises each year, the Navy continues to find ways of lowering costs while still meeting regulatory requirements.

Over the next year, a model SIMA will be developed at Mayport's Shore Intermediate Maintenance Activity (SIMA). This process will analyze, identify and evaluate ways to satisfy environmental compliance requirements and reduce the regulatory burden and associated compliance costs by evaluating options for P2. The idea, according to Ursula Shaw, Mayport NELP coordinator, is to use preferred P2 methods and equipment to comply with regulations.



Life cycle assessments trace pollution prevention efforts from cradle to grave.

The concept of Life Cycle Cost Assessment was included in the Environmental Protection Agency's (EPA) Code of Environmental Management Principles (CEMP) for Federal Agencies in response to the August 1993 Executive Order 12856. The order requires federal agencies to apply Life Cycle Analysis and Total Cost Accounting principles when evaluating P2 opportunities.

This analysis is designed to eliminate or reduce potential adverse environmental impacts, while simultaneously cutting costs and maintaining or improving the process. We will use a consistent approach to identify relevant costs and benefits using standard

FASTT and NELP

continued from page 1

"This is the greatest job in the Navy," Tittle said. "We get to identify problems, find solutions and actually see them implemented and the benefits they provide."

Mayport NELP Coordinator Ursula Shaw said the FASTT team and Mayport NELP representatives interviewed personnel at the shop-floor level to find ways to cut environmental compliance costs and simplify work processes. "The people closest to the processes, the shop personnel, are often the best source of information about possible improvements," Shaw said.

One opportunity identified by the FASTT team involves replacing the detergent used in aqueous parts washers with another product. In addition to being easier to use, the new detergent allows the parts washers to operate at proper temperatures (160 to 180 degrees Fahrenheit), thus increasing solution life, minimizing corrosion, improving efficiency, and reducing the need for post-cleaning.

Shaw said NELP has supported multiple environmental initiatives at NAVSTA Mayport since its inception five years ago. She noted that NELP could benefit greatly by working with FASTT. "Our partnership with FASTT and our support of their initiatives will help us find ways for the Navy to accomplish its mission faster, better, and cheaper," she said.

FASTT will conduct a follow-up survey of NAVSTA Mayport in about 18 months to monitor progress and introduce applicable

new technologies. "Even after we leave, my engineers will leave phone numbers where they can be contacted for help," Tittle said.



Mayport Executive Officer Commander A.R. Trotter (left) and FASTT Director Charles Tittle.

Still using PD-680? There is something better.

All areas at NAVSTA Mayport using "Safety-Kleen" tanks filled with PD-680 solvent should be modified to use the less hazardous "Premium Gold" solvent, also available from "Safety-Kleen." This need was identified in a recent survey by the Fleet Assistance, Support and Technology Transfer (FASTT) team in co-operation with NELP.

"Premium Gold" is being used at Puget Sound Naval Shipyard, and workers have reported that it cleans as well as PD-680 and produces fewer fumes. In addition, the shipyard experienced a 75 percent reduction in off-site transfers of solvent for recycling. The "Premium Gold" system is a standard option offered by "Safety-Kleen" and can typically be installed at no extra cost.



NAVSTA Mayport NELP Coordinator Ursula Shaw (left) and Mayport's Pollution Prevention Manager Bob Tierney.

↪ *continued on page 7*

NAS North Island hits the road in electric vehicles

Staff at Naval Air Station (NAS) North Island are slashing pollution levels by using electric pickup trucks for transportation on-base and between bases.

According to Mike Magee, NAS North Island NELP Coordinator, the base received 10 electric pickup trucks to add to their existing fleet of 3 electric vans, 5 electric carts, and more than 100 electric utility vehicles. The operation, testing and evaluation of the electric pickup trucks is called the Zero Emission Vehicle (ZEV) Project and is managed under the NELP Pollution Prevention (P2) Program. Vehicle users include the HS-10 "Warhawks," Aircraft Intermediate Maintenance Department, Operations Department, Supply Department, and Staff Civil Engineer.

The ZEV Project was part of the electric vehicle program developed by the Department of Defense and the Secretary of the Navy to encourage use of alternative-fuel vehicles. "We heard that a number of these trucks were allocated to Port Hueneme, so I requested allocation of several for NELP's ZEV initiative. That's how we got the ten pickup trucks," Magee said. NELP partnered with Naval Facilities Engineering Service Center and Public Works Center (PWC) San Diego to place the vehicles.

Given the fact that cars account for half the oil consumed in the U.S. and about half the urban pollution, states like California are requiring increased use of electric vehicles. In fact, California has mandated that, by 2003, 10 percent of all new passenger vehicles sold by major manufacturers in California must be electric. That amounts to about 100,000 cars a year. "North Island NELP is striving to be on the leading edge for fleet use of alternative-fuel vehicle technology," Magee explained. A key concern for the neighboring community of Coronado is air emissions generated by the base. Magee looks toward continued growth of the ZEV Project and North Island's alternative vehicle fleet. "We hope to continue growing our low-emission vehicle fleet to do our part in reducing emissions," he said.

According to manufacturer's specifications, the pickups can run for 40 to 45 miles before requiring a 3-hour recharge; however, North Island users are averaging about 25 to 35 miles. Limited range was anticipated, so the vehicles were placed in uses averaging less than 20 miles a day. The trucks are frequently used for interbase travel between NAS North Island, Naval Station San Diego, and COMNAVBASE San Diego.

According to Ed Bonnes, program manager for P2, "These trucks definitely perform as well as gasoline-powered vehicles. You can't tell any difference when you're driving an electric truck. It accelerates just as fast and handles about the same. The only thing you'll notice when driving an electric vehicle is that it is so much quieter than a gasoline-powered one. The biggest challenge to drivers has been to keep range in mind so they don't run out of power."

PWC took on the challenge of servicing and maintaining the ZEVs, as well as arranging for warranty work. They installed 10 charging stations to accommodate the trucks. According to Dean Lewis, heavy equipment mechanic for PWC, "The drivers are happy with these vehicles. They run pretty smoothly. We've had to have some warranty work done on them, which the manufacturer takes care of. It was a trying time in the beginning; these are from the first batch of electric pickups, so we expected some 'bugs.' Overall, they are working very well now."

Besides their environmental advantages, electric vehicles are also economical to operate, since electricity costs much less than petroleum fuel, Bonnes noted. He also said that a testing and evaluation period for the trucks will begin soon. "Now we're at a point where we can measure the true benefits. We've worked out the operational kinks. Soon we will be giving the truck operators charts to record mileage and power consumption," he said.

Future planned additions to NELP's ZEV Project include prototype demonstration of a hybrid electric tow tractor and two hybrid electric vans. The hybrid electric technology provides an auxiliary power source, thereby greatly increasing vehicle range.

NAS North Island Electric Vehicle Fleet



Trans2 electric carts - top speed 20 mph. Carts used by NASNI Supply Department and Information Resources Management Department for on-base transportation.



Bombardier electric cart - top speed 27 mph. Carts used by NASNI Environmental Division for on-base travel and inter-base travel to NAB Coronado.



Dean Lewis (left), PWC San Diego Heavy Equipment Mechanic, and Ed Bonnes, NASNI P2 Program Manager, welcome a new electric pickup truck to North Island.



Inductive charging stations at NASNI Staff Civil Engineer Department power two electric pickup trucks. Meters for measuring electricity usage are located between stations.

NELP

continued from page 1

Mayport NELP's organization of focused management includes an Executive Steering Committee (ESC) comprised of the base Commanding Officer and the Commanding Officers of Helicopter Squadron Light Wing Atlantic, Fleet Training Center, Afloat Training Group, Regional Support Group, Destroyer Squadron 14, Carrier Group 6, Western Hemisphere Group, Fleet Industrial Supply Center Jacksonville, Public Works Center Jacksonville, Southern Division Naval Facilities Engineering Command, a representative from Naval Base Jacksonville, and the Florida Department of Environmental Protection. The ESC chartered a Focus Group to manage NELP that includes members from each of the commands.

NELP partners with Naval Air Warfare Center Lakehurst; Naval Facilities Engineering Service Center (NFESC); and the Fleet Assistance, Support and Technology Transfer (FASTT) team to identify and implement new and innovative technologies and pollution prevention (P2) equipment.

"Many people do not realize the diversity of the NELP program," Mayport NELP Coordinator Ursula Shaw said. According to Shaw, NELP is a multimedia environmental management system that includes P2 prototype testing, training, community outreach, and natural resource conservation. Some of the new technologies being evaluated at Mayport include helicopter transmission fluid purification, absorbent clay recycling equipment, and bulk storage tank leak detection. In addition, NELP is initiating studies to evaluate use of an immobilized cell bioreactor for shipboard



SH-60B Seahawk hovers above the airfield near the Mayport lighthouse.

wastewater processing and continuous digitized biosensor monitoring of treated effluent from ships and shore facilities. Both the installation restoration and the new petroleum partnering teams evaluate innovative and cost-effective investigation and remediation technologies. One QMB is investigating alternative practices to improve the environmental impacts of construction contracting activities.

In cooperation with the USS JOHN HANCOCK, Mayport NELP promoted several successes for the P2 Afloat group. These successes included implementing a rag recycling program to promote the washing of oily rags in new washers and dryers, which minimizes or eliminates the disposal of oily rags; installing 25-gallon paint dispensers that provided the ability to accurately dispense exact amounts of paint and allowed unused paint to be re-added to the dispenser to reduce the amount of hazardous waste; and using a cable cleaner lubricator that cleans and lubricates while the cable is cycled, thereby reducing the time needed to complete routine preventive maintenance to less than 30 minutes. Shaw emphasized the cost effectiveness of these initiatives and added that programs such as the rag recycling were well received by the sailors.

NAVSTA Mayport, Shaw added, was designated by CNO to evaluate the benefits of meeting the exacting standards for certification under the International Organization for Standardization (ISO) 14000, a recognized standard for environmental management. A QMB is performing a "gap analysis," which compares current management systems with the requirements of ISO. The QMB will send its findings to the ESC with a recommendation regarding Mayport's certification under ISO 14000.



Firefighter training at the Mayport training facility.

A Congressional Plus Up has funded Mayport NELP to study a number of items including the potential for aqueous film forming foam (AFFF) and other substances to enter the wastewater treatment plant, creating a model Shore Intermediate Maintenance Activity (SIMA), developing training CD-ROMs for fuel transfer afloat for the prevention of oil spills, and procuring and evaluating the effectiveness of a portable liquid natural gas fire fighting trainer that may lead to future Navy procurements.

Mike Magee, NASNI NELP coordinator, recognizes the synergy created by partnerships with other activities. "NELP and its partners enable Navy Operational Primacy by overcoming environmental obstacles and maintaining environmental compliance with maximum efficiency and minimum cost," Magee said.

According to Magee, NASNI NELP has selected a simple and efficient organization designed to maximize

functional capabilities while minimizing unnecessary controls and administrative costs. "Our management team was established to initiate, coordinate and monitor innovative projects for NELP and to ensure that NELP met the objectives and mission set out by CNO," Magee said. NASNI NELP's management team members currently include representatives from Commander, Naval Base San Diego; San Diego Public Works Center (PWC); Southwest Division, Naval Facilities Engineering Command; Naval Aviation Depot North Island; and Naval Air Station North Island. Magee added that ad hoc project action teams and partnerships are formed as required to involve fleet operators and stakeholders in the various NASNI NELP initiatives.

The NASNI NELP cleanup program is currently partnering with the U.S. Environmental Protection Agency (EPA) Superfund Innovative Technology Evaluation (SITE) program, EPA Technology Innovation Office and Clean Sites, Inc. to evaluate a "NoVOCs" in-well air stripping technology. NoVOCs is an in situ method that recirculates groundwater and removes only the volatile organic compounds in vapor phase for later off-gas treatment. Off-gas treatment is being accomplished using a flameless thermal oxidation technology, which was previously demonstrated by NELP in 1995. A six-month demonstration is currently under way.

NASNI NELP has a separate cleanup partnering initiative with the Naval Facilities Alternative Restoration Technology Team (ARTT), NFESC Port Hueneme, and Southwest Division Naval Facilities Command to demonstrate a photolytic off-gas VOC destruction technology and perform a comprehensive analysis of off-gas treatment technologies for cleanup. The demonstration has been completed and NFESC is currently preparing the off-gas treatment technology study, which will result in a database for use by remedial project managers.

NASNI NELP is also looking at P2 in the cleanup program. In addition to evaluating P2 aspects of insitu cleanup methods, NELP is now demonstrating the DMLS™, an advanced, passive multilayer groundwater sampling technology. DMLS uses connected rods with openings at specific intervals to accommodate a "dialysis cell." Each cell is an independent sampling unit, separated by flexible seals that fit the inner diameter of the well. Groundwater enters across screened areas of the well and into the cells by diffusion. Several days later when equilibrium is

*USS Constellation
departs NAS
North Island for
Western Pacific.*



reached, the cell contains a representative sample of groundwater from a narrow layer of the aquifer. A P2 benefit of this sampling technology is that no well purging is required for sampling. Depending on methods used, well purging can generate several hundred gallons of contaminated wastewater that must be characterized and possibly disposed of as hazardous waste. This technology has the potential for greatly reducing well purging wastewater, while also more accurately defining groundwater contamination zones.

"I see NELP becoming a one-stop shopping experience encompassing all your Navy environmental needs," CNO Pollution Prevention Program Manager Dan Glass said. "Whether your primary duties are in cleanup, disposal, treatment, recycling, compliance, pollution prevention, or training, NELP is the door to the latest information on pollution prevention technologies and improvements in environmental management."

According to Magee, NELP is constantly looking for ways to make continuous improvements for the Navy and Marine Corps family. "We never stop learning," Shaw added.

"In order to continuously improve the NELP process, it is critical that we receive feedback from the fleet so that we are aware of issues that need to be resolved and we communicate back to the fleet on the lessons learned from technologies already tested," Shaw said. "NELP appreciates the fact that other activities have found solutions to environmental issues, and we would like to be the mechanism to get the word out," Shaw added and Magee agreed.

*DMLS™
groundwater
sampling dialysis
cell being prepared
for installation at
NAS North Island
Installation
Restoration Site 9.*



Mayport and North Island Move to Automated, Solvent-Free Cleaning

Cleaning parts. It's a dirty job, but somebody has to do it, right? Well, thanks to an innovative technology tested by the NELP at NAVSTA Mayport and NAS North Island, the job is getting easier, cleaner, and safer.

Instead of cleaning with solvents, a water-based or "aqueous" parts washer uses biodegradable solutions—rather than hazardous solvents—in an automated closed-loop system that operates much like a dishwasher. The parts washer uses heated aqueous solutions containing alkaline detergent. Filters in the washer continuously remove suspended contaminant particulates, and disc-type oil skimmers remove floating oil. High-pressure sprayers lining the cabinet's interior blast the contents with the superheated detergent solution, stripping them of dirt, grime, grease and oil.



A ChemFree "SmartWasher" in use at SIMA Mayport.

The detergent solution can be reused for up to 6 months without replenishment; the trapped sludges are removed occasionally for disposal as solid waste.

NADEP and the Aircraft Intermediate Maintenance Department at NAS North Island have replaced many solvent-based cleaning processes with aqueous-based cleaning technologies, which in turn means that they no longer have the burdens associated with local air permits, permit record-keeping, and personal protective equipment. At NADEP, parts washers have eliminated 17 vapor degreasers, each containing 10 to 15 gallons of ozone-depleting solvents. In addition to a healthier environment, parts washer benefits include an estimated 25- to 50-percent reduction in labor hours—labor savings that will be gained by the washer's ability to clean many parts simultaneously. One aqueous parts washer can do the work of several chemical solvent systems, and no additional labor is required for each part added to a cleaning cycle; in fact, the operator is free to perform other tasks while the cycle is running. Disposal costs are also decreased through the 27- to 45-percent reduction in waste volume and toxicity provided by the new system.

The washers come in various sizes. NAVSTA Mayport already has one of the smaller units in place at the Aircraft Intermediate Maintenance Department (AIMD), and a large-capacity model has been ordered for the Shore Intermediate Maintenance Activity (SIMA), according to Bob Tierney, P2 Manager for Mayport. "After some initial problems with flash rust were alleviated by adding rust inhibitors to the solution, AIMD has been pleased with their results," says Tierney. "SIMA wanted the bigger unit to accommodate large diesel blocks, and I expect similarly good results."

The Support Equipment Rehab facility at North Island and the SIMA at Mayport are presently using a ChemFree Corporation "SmartWasher," a state-of-the-art manual parts cleaner that is claimed to combine the safety of bioremediation with high-performance cleaning standards. The SmartWasher uses a special filter pad to introduce microorganisms (called "Ozzy Juice") into the cleaning process. The microorganisms remain dormant until the filter pad is inserted into the proprietary nonhazardous parts cleaning solution. As the solution begins circulating within the washer, the nonpathogenic hydrocarbon-digesting "Ozzy Juice" breaks down and consumes oil and grease particles.

The cleaning solution used in the SmartWasher is a biodegradable, nonflammable, non-corrosive, nontoxic oil dispersant and cleanser that contains no volatile organic compounds (VOCs), no known carcinogens, and no chemicals regulated by the Occupational Safety and Health Administration or Department of Transportation. Personnel in the shop consistently prefer to use the SmartWasher to wash parts. Unlike PD-680 or mineral spirits, the aqueous-based cleaning solution does not sting or burn, and it emits a pleasant odor. A cost-benefit analysis conducted by NELP proved an annual cost savings of \$3,264 per year and a 340 pounds per year reduction in VOC generation for each unit replaced.

NASNI NELP spearheaded use of portable high-pressure, superheated steam cleaning units to replace several solvent-based processes. The PDQ, Inc. "Mini-Max" steam cleaners are being used to clean electromechanical subassemblies, replacing 1,1,1-Trichloroethane, a hazardous material and ozone-depleting substance. The "Mini-Max" is also being used at NASNI to clean small arms, thereby replacing the PD-680 Stoddard solvent cleaning process.

The parts washers were provided under the Chief of Naval Operations (N45) Pollution Prevention Equipment Program (PPEP), as recommended by the Naval Air Warfare Center Aircraft Division Lakehurst, which serves as one of two procurement agents for the P2 Equipment Program.



Ed Bonnes, P2 Manager (center, foreground), and Hector Padilla, NASNI Support Equipment Shop Manager (right), explain use of the "Mini-Max" steam cleaner.

Life Cycle Cost Assessments to Provide Environmental Model

continued from page 2

financial indicators. The Net Present Value (NPV), Payback Period (P/B) and Return of Investment (ROI) for each recommended action will be calculated and prioritized.

P2 is by nature an investment for the future, carrying an anticipated ROI. To fully justify investments in P2 and maximize the potential cost savings, accurate accounting of all associated costs, including both direct and indirect, must be documented.

With the increasing complexity and costs of environmental compliance, our intention is to put in place a P2 program that provides the most cost effective environmental management over the entire process lifetime.

As with all NELP initiatives, the lessons learned will be generated and communicated to our Navy and Marine Corps family.



NASNI FY '98 Pollution Prevention Initiatives



Aerial view of NAS North Island (NASNI).

Highlights of NAS North Island's P2 Pre-Production initiatives under CNO's P2 Equipment Program.

- **Improved Marking and Stenciling System** - This system provides automated lettering and numbering capability using various sizes of adhesive labels. We believe this off-the-shelf technology will vastly reduce air emissions and hazardous waste associated with use of aerosol paints, which are commonly used to provide letter and number markings. The marking system will be demonstrated at an Intermediate-level support equipment maintenance facility. NASNI NELP is partnering with NAWC Lakehurst for this prototype effort.
- **Powder Coating for Common Support Equipment (CSE)** - Although this technology is well proven and has been used at various Navy shore activities, it has not been used by the Naval Aviation community for coating CSE. Powder coating has the benefit of producing extremely low volatile organic compound emissions, while providing a durable coating system that can potentially outlast current polyurethane coating systems used on CSE. However, powder coating requires strict process control and thoroughly trained process operators. NASNI NELP will also evaluate a "touch-up" system for powder coatings for ashore and afloat maintenance of CSE coated by this method. Powder coating booths are

↱ *continued on page 8*

NASNI FY '98 Pollution Prevention Initiatives

continued from page 7



Charlie Ketcham, NASNI Water Program Specialist, checks out Enviremedial's wash rack technology in a NELP pilot demonstration.

now being installed at an Intermediate-level CSE equipment maintenance facility. Another benefit for San Diego-area Navy activities is that powder coating operations do not require air pollution control permits. Cost effectiveness of powder coating will be analyzed in this project. NASNI NELP is partnering with NAWC Lakehurst and Naval Aviation Engineering Service Unit on this prototype effort.

- **Automated Paint Measurement and Dispensing** - This state-of-the-art technology allows painters to accurately dispense two-part coatings for only the amount needed to cover a job. There are tremendous amounts of paint waste due to improper mixing of coatings or large paint containers left improperly sealed. NASNI hopes to minimize paint waste by using this technology to accurately meter and dispense coatings to authorized users only. A second benefit of this system is automated record-keeping of amount of paint dispensed. Coating logs are usually required by air pollution control permits, so automating the record-keeping process will save time and money. We believe this technology will work well in coating processes that frequently use standard coating systems (primer and topcoat). Therefore, we will prototype this technology at an Intermediate-level support equipment maintenance facility. NASNI NELP is partnering with NAWC Lakehurst on this prototype effort.

- **New Closed Loop Wash Rack Technology** - Naval Amphibious Base (NAB) Coronado is currently spending \$30K annually maintaining a small boat and vehicle wash facility. The system is unreliable and difficult to maintain because large amounts of sand enter the wash rack system. In an effort to improve the boat wash/vehicle wash process, NASNI NELP is planning to demonstrate an innovative technology originally developed by an Australian company. Demonstrations of a portable, mobile system at NAB Coronado have shown that this technology may be much better at separating contaminants from water than other wash rack technologies currently being used by Navy activities. It is hoped that this technology will significantly reduce operation and maintenance costs, while doing a much better job of removing oil and sand from wash rack water. NASNI is currently in design phase to install this technology at NAB Coronado in 1998. Efficacy and cost effectiveness of this system will be evaluated in 1999. NASNI NELP is partnering with Public Works Center San Diego on this prototype effort.



For questions or comments, visit the NELP website at www.nelp.navy.mil or contact Ursula Shaw (NAVSTA Mayport NELP Coordinator) at (904) 249-6730 (DSN 960) or e-mail at nuns1@navtap.navy.mil or Mike Magee (NASNI NELP Coordinator) at (619) 545-2709 or e-mail at mmagee@nasni.navy.mil.

